



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,484	07/07/2003	Ramkumar Subramanian	H0338	7753
23623	7590	02/03/2004	EXAMINER LE, THAO P	
AMIN & TUROCY, LLP 1900 EAST 9TH STREET, NATIONAL CITY CENTER 24TH FLOOR, CLEVELAND, OH 44114			ART UNIT 2818	PAPER NUMBER

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

## Office Action Summary

Application No.

10/614,484

Applicant(s)

SUBRAMANIAN ET AL.

Examiner

Thao P Le

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 07/03 6) ☐ Other:

DETAILED ACTION

***Information Disclosure Statement***

1. Information Disclosure Statement (IDS) filed on 7/7/03 and made of record. The references cited on the PTOL 1449 form have been considered.
2. Claims 1-20 are pending in this application.

***Claim Rejections***

**Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al., U.S. Pub. No. 2003/0017623.

Regarding to claims 1, 14, and 20, Li et al. discloses the method of forming an organic memory device including the present invention's limitations. See Figs. 1-8 and

Pages 1-8. Li et al. discloses the method of forming an organic memory device comprising the steps of forming an electrode 118 (Fig. 7) on a substrate, forming a passive material 126 over the electrode, forming an organic semiconductor layer containing organic polymer 132 over the passive material layer, forming a second electrode 138 over the organic semiconductor material to operatively couple the first electrode and the second electrode. Li et al. fails to disclose the steps of forming a silicon-based resist layer on the organic semiconductor layer and patterning the organic semiconductor layer using the silicon-based resist as a mask. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form a silicon-based resist layer on the organic semiconductor layer and then pattern the organic semiconductor layer using the silicon-based resist as a mask because these steps are well known as common steps that included in the method of forming memory devices.

Regarding to claim 2, Li et al. discloses the deposition of a passive material 126 over the electrode.

Regarding to claim 9, Li et al. discloses the organic semiconductor layer is made of polymer, copolymer, polyvinylidene fluoride-trifluoroethylene etc ... (paragraph 0045) but fails to disclose the polymer is selected from at least one of polyacetylene, polyphenylacetylene etc... It would have been obvious to one having skill in the art at the time invention was made to replace the polymers taught by Li et al. by the polymers that recited in claim 9 because these polymers have similar properties.

Regarding to claims 10, 15, Li et al. discloses that the passive material comprises metal or metal alloy.

Regarding to claims 3-5, 7, 8, 11, 16, 17, and 19, Li et al. fails to disclose the steps of forming of silicon-based resist layer, patterning the organic layer and the substrate whereas the layer is made of polysiloxane or silsesquioxane, and whereas the step of patterning the organic layer comprises contacting the organic layer with oxygen plasma. ~~It would have been obvious to one having ordinary skill in the art that the~~ silicon-based resist is well known to be used as resist when the layer to be pattern is made of organic material, and the oxygen plasma process is used for patterning the organic layer.

Regarding to claims 12-13, Li et al. discloses the method above used to form transistor, DRAM etc...

Regarding to claims 6, 18, Li et al. discloses further step of forming a second electrode 138 over the organic semiconductor layer to form an organic memory cell.

5. When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Art Unit: 2818

**Conclusion**

6. Brown et al., U.S. Patent No. 6,528,815 also discloses the method of forming organic memory device similar to present invention.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao P Le whose telephone number is 571-272-1785. The examiner can normally be reached on M-T (8:00-6:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1956.



Thao Phuong Le

Examiner



David Nelms  
Supervisory Patent Examiner  
Technology Center 2800